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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,987	11/07/2001	Thomas W. Smith	D/A1422	1213
7590	09/12/2003			
Patent Documentation Center Xerox Corporation Xerox Square 20th Floor 100 Clinton Ave. S. Rochester, NY 14644			EXAMINER SHOSHO, CALLIE E	
			ART UNIT 1714	PAPER NUMBER

DATE MAILED: 09/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/052,987	SMITH ET AL.
	Examiner	Art Unit
	Callie E. Shosho	1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>11/7/01</u> .	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

**Claim Rejections - 35 USC § 102**

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 5-7, 10, and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Wexler (U.S. 6,297,296).

Wexler discloses process which comprises mixing water/anionic dye with water/polyquaternary amine to cause formation of complex of anionic dye and polyquaternary amine, precipitation of complex, and isolation of the formed complex. There is also disclosed a process of preparing an ink jet ink composition which comprises adding the anionic dye-polyquaternary amine complex formed from the above process to ink carrier which comprises organic co-solvent including alcohols and ketones. The anionic dye includes Acid Yellow 23, Acid Red 52, Acid Blue 9, and Direct Blue 199. There is also disclosed method of printing the ink comprising incorporating the ink into thermal ink jet printer followed by ejecting the ink onto substrate (col.1, lines 5-10, col.3, lines 26-32, col.4, lines 10-11 and 12-18, col.5, lines 4-7, 11-13, 19-22, col.7, lines 11-14, 19-23, and 45-49, and col.8, lines 6-8 and 15-20).

In light of the above, it is clear that Wexler anticipates the present claims.

**Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2-4, 8-9, 11-12, and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wexler (U.S. 6,297,296) in view of Gundlach et al. (U.S. 6,054,505).

The disclosure with respect to Wexler in paragraph 2 above is incorporated here by reference.

The difference between Wexler and the present claimed invention is the requirement in the claims of (a) specific types of polyquaternary amine and (b) nonpolymeric salt.

With respect to difference (a), Gundlach et al., which is drawn to ink jet ink comprising complex of anionic dye and polyquaternary amine, disclose the use of polyquaternary amine such as polydimethyldiallyl ammonium, polyquaternized polyvinylamine, polyquaternized polyallylamine, epichlorohydrin/amine copolymer, cationic amido amine copolymer, and copolymer of vinyl pyrrolidone and vinyl imidazolium. These polyquaternary amine compounds are capable of forming complexes with anionic dye in order to produce ink with bright color and high waterfastness (col.1, lines 5-14 and col.6, lines 20-25 and 52-58).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use the specific polyquaternary amine compounds disclosed by Gundlach et al. in the ink of Wexler in order to produce ink with bright color and high waterfastness, and thereby arrive at the claimed invention.

With respect to difference (b), Gundlach et al. disclose use of 0.1-40% nonpolymeric salt in order to improve the stability of the anionic dye-polyquaternary amine complex (col.17, lines 66-67, col.19, lines 51-58, and col.20, lines 7-27).

In light of the motivation for using nonpolymeric salt disclosed by Gundlach et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use

such salt in the ink of Wexler in order to improve stability of the anionic dye-polyquaternary amine complex, and thereby arrive at the claimed invention.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wexler (U.S. 6,297,296) in view of Gundlach et al. (U.S. 6,054,505) and Mayo et al. (U.S. 6,174,355).

The disclosure with respect to Wexler in paragraph 2 above is incorporated here by reference.

The difference between Wexler and the present claimed invention is the requirement in the claims of (a) specific type of polyquaternary amine and (b) specific type of anionic dye.

With respect to difference (a), Gundlach et al., which is drawn to ink jet ink comprising complex of anionic dye and polyquaternary amine, disclose the use of polyquaternary amine such as polydimethyldiallyl ammonium. This polyquaternary amine is capable of forming complexes with anionic dye in order to produce ink with bright color and high waterfastness (col.1, lines 5-14 and col.6, lines 20-25 and 52-58).

With respect to difference (b), Mayo et al., which is drawn to ink jet ink comprising anionic dye and polyquaternary amine, disclose the use of Projet Magenta 3BOA, which is the tradename for the dye set forth in present claim 13, as dye which reacts favorable with polyquaternary amine. Mayo et al. also disclose the equivalence and interchangeability of Projet Magenta 3BOA with Acid Red 52 as disclosed by Wexler (col.6, lines 59-62 and col.8, lines 5-10).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use the specific polyquaternary amine compound disclosed by Gundlach et al. and the

specific anionic dye disclosed by Mayo et al. in the ink of Wexler in order to produce ink with bright color and high waterfastness, and thereby arrive at the claimed invention.

7. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wexler (U.S. 6,297,296) in view of Gundlach et al. (U.S. 6,054,505) and Deardurff et al. (U.S. 5,788,754).

The disclosure with respect to Wexler in paragraph 2 above is incorporated here by reference.

The difference between Wexler and the present claimed invention is the requirement in the claims of (a) specific type of polyquaternary amine and (b) specific type of anionic dye.

With respect to difference (a), Gundlach et al., which is drawn to ink jet ink comprising complex of anionic dye and polyquaternary amine, disclose the use of polyquaternary amine such as polydimethyldiallyl ammonium. This polyquaternary amine is capable of forming complexes with anionic dye in order to produce ink with bright color and high waterfastness (col.1, lines 5-14 and col.6, lines 20-25 and 52-58).

With respect to difference (b), Deardurff et al., which is drawn to ink jet ink, disclose the use of Ilford Magenta 377, which is the tradename for the dye set forth in present claim 15, and Ilford Yellow 104, which is the tradename for the dye set forth in present claim 14, as dyes used to color the ink. Deardurff et al. also disclose the equivalence and interchangeability between Magenta 377 and Yellow 104 with acid dyes such as Acid Yellow 23 and direct dyes as disclosed by Wexler (col.6, lines 25-41).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use the specific polyquaternary amine compound disclosed by Gundlach et al. and the specific anionic dye disclosed by Deardurff et al. in the ink of Wexler in order to produce ink with bright color and high waterfastness, and thereby arrive at the claimed invention.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wexler (U.S. 6,297,296) in view of Gundlach et al. (U.S. 6,054,505) and Deardurff et al. (U.S. 5,788,754).

The disclosure with respect to Wexler in paragraph 2 above is incorporated here by reference.

The difference between Wexler and the present claimed invention is the requirement in the claims of (a) specific type of polyquaternary amine and (b) specific type of anionic dye.

With respect to difference (a), Gundlach et al., which is drawn to ink jet ink comprising complex of anionic dye and polyquaternary amine, disclose the use of polyquaternary amine such copolymer of vinyl pyrrolidone and vinyl methylimidazolium. This polyquaternary amine is capable of forming complexes with anionic dye in order to produce ink with bright color and high waterfastness (col.1, lines 5-14 and col.6, lines 20-25 and 52-58).

With respect to difference (b), Deardurff et al., which is drawn to ink jet ink, disclose the use of Ilford Yellow 104, which is the tradename for the dye set forth in the present claim, as dyes used to color the ink. Deardurff et al. also disclose the equivalence and interchangeability between Yellow 104 with Acid Yellow 23 as disclosed by Wexler (col.6, lines 25-41).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use the specific polyquaternary amine compound disclosed by Gundlach et al. and the

anionic dye disclosed by Deardurff et al. in the ink of Wexler in order to produce ink with bright color and high waterfastness, and thereby arrive at the claimed invention.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gundlach et al. (U.S. 6,001,899) disclose ink jet ink comprising anionic dye and polyquaternary amine wherein all the ink ingredients including the dye and polyquaternary amine are all mixed together at once. There is no disclosure of process comprising forming first solution of water and dye, forming second solution of water and polyquaternary amine, mixing the two solutions to form complex, precipitating the complex, and then isolating the complex as required in the present claims.

Pawlowski et al. (U.S. 5,788,753) disclose ink jet ink comprising anionic dye-polyethyleneimine complex, however, there is no disclosure of process as presently claimed.

Pearlstine (U.S. 5,969,033) disclose ink jet ink comprising dye-polymer complex, however, there is no disclosure of polyquaternary amine as presently claimed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

*Callie Shosho*

Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS  
9/6/03